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Used vegetable oil from fast-food restaurants can double as auto fuel, thanks to a Missouri man's invention.

To Charles Anderson, success often smells like fried food.

A year ago, he launched his company, Greasel, hoping to sell a kit he developed that allows car owners to convert their diesel engines to run on used vegetable oil. With political uncertainties in the Middle East threatening to interfere with fossil fuel supplies, he is confident his business will continue to grow.

"It's better for your engine and the environment," said Anderson, of Drury, Mo., about 200 miles southwest of St. Louis. "And you can run your car on free fuel."

The last selling point has persuaded many customers to order and install his product.

"I last filled up at a Chinese restaurant," said Perry Pillard, a software engineer in Dallas who discovered Anderson's kit through an online search. Pillard regularly fills giant barrels with gallons of used vegetable oil for no charge from fast-food restaurants, which otherwise would have to pay for the removal and disposal by a professional service.

Charlie White, a student at Dartmouth College in Hanover, N.H., goes directly to a storage room behind his school's dining hall to fill up on fuel. He spent eight hours installing the Greasel system to work with the diesel engine running his 1984 Chevrolet Suburban.

"The most complicated thing I'd done previously was change the car's headlamp," White said.

According to Anderson, 29, most customers use ordinary 5-gallon jugs to store the used cooking oil, and fill up as needed. He said most cars get as many miles to the gallon with the used oil as they do with diesel. (The Center for Automotive Research in Ann Arbor, Mich., says diesel provides 20 to 25 percent more fuel economy than gasoline.)

Mileage can fluctuate slightly depending on the kind of oil, Anderson said.

"Some fast-food places use oil that's like lard and hard to filter," Anderson said. "But many restaurants use clear frying oil and change it often. It's not burned to death and tends to be more translucent. We call that stuff liquid gold. It's beautiful."

For now, Greasel's best prospects may lie in overseas markets, where diesel engines are far more common. Earlier this year, a Mitsubishi truck dealership and service center in Japan asked Anderson to teach its mechanics how to install the Greasel kit. And cars in places such as Brazil and Ireland are now running on used cooking oil, thanks to Greasel.

Anderson was not the first person to envision diesel engines operating on straight vegetable oil. According to a book by alternative-energy proponent Joshua Tickell, "From the Fryer to the Fuel Tank," at the 1900 World Exhibition in Paris, Rudolf Diesel used peanut oil to run the engine he had developed five years earlier.

A century later, with environmentalists warning about the dangers of global warming and urging the public to rely less on fossil fuels, the inventor's idea has begun to pick up momentum. At least one other company in the United States, GreaseCar, offers conversion kits similar to Anderson's.

After reading Tickell's book, which contains a how-to chapter on converting diesel engines to run on vegetable oil, Anderson began experimenting with his own vehicles. Conversion involves installing a vegetable oil tank and modifying a few heating hoses. As soon as the mechanical changes have been made, Anderson says, the diesel engine can be started on diesel fuel and then switched to burn hot vegetable oil.

"Once the vegetable oil is thinned out by heat, usually a minute or two after you start the engine on regular diesel, you flip a switch on your dash and a fuel selector valve switches you from diesel to clean-burning vegetable oil," he said. "The injection pump that is feeding fuel to the cylinders can't tell the difference between hot vegetable oil and diesel and keeps right on pumping."

Anderson has helped customers install the \$365 kit on a variety of cars by automakers such as Toyota, Mazda, Volvo, Isuzu and Nissan. He and his family do their farming using a John Deere tractor, which runs on post-frying fuel.

But some warn that unrefined cooking oil can damage vehicles.

"There have been significant data showing that if you don't take the glycerin out of (the fuel), you can get a number of mechanical problems over time," said Joe Jobe, the executive director for the National Biodiesel Board, a trade association based in Jefferson City. He warns that using straight vegetable oil to run a diesel engine usually voids the manufacturer's warranty.

According to Jobe, biodiesel, a fuel that can be made from any fat or vegetable oil through a chemical process known as transesterification, provides a sounder option than waste cooking oil. He said scientists have done extensive testing on biodiesel as an alternative source of energy and noted that a 1998 government-sponsored study found it reduces emissions of carbon dioxide - a gas thought to contribute to global warming - by 78 percent compared with petroleum diesel.

Anderson says properly filtered waste vegetable oil will not harm diesel engines. He believes it will prove to be the fuel of the future.

"I've had injection systems torn apart by experts, and they've found no buildup," he said.

Pillard, who has converted both of his family's Chevrolet cars - a 1982 Chevette and a 1988 Suburban - also remains convinced that vegetable oil is the way to go. He has driven from Dallas to New York and put thousands of miles on his cars after converting their engines. Spreading environmental consciousness and a distinguishable odor, Pillard will continue to frequent fast-food restaurants in Texas for free fuel.

"Nine times out of 10, the exhaust smells like french fries," he said, "but every once in a while it smells like Chinese food."

For more information on Greasel, go to www.greasel.com, or call 1-866-473-2735.

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